REMARKS

Two issues remain in this application: Written Description and Anticipation. Each is addressed below.

Written Description

Claims 1-7, 10-16, 54, and 56 stand rejected under 35 U.S.C. § 112, first paragraph, for lack of a written description. This rejection is respectfully traversed.

With respect to the issue that applicant has not described a representative number of species of the claimed genus, applicant points out that "[r]epresentative examples are not required by the statute and are not an end in themselves." *In re Robins,* 429 F.2d 452,457 (CCPA 1970). Rather, applicant's specification "must 'convey clearly' to those skilled in the art to whom it is addressed ... the information that [the inventor] has invented the specific subject matter later claimed." *Martin v. Mayer,* 853 F.2d 500, 505 (Fed. Cir. 1987). In this regard, applicant notes that the molecules useful in practicing the claimed methods do not differ radically from each other and the examples found in the specification identify the group broadly to the skilled worker. *In re Grimme*, 274 F.2d. 949, 952 (CCPA 1960). Applicant's recitation of calcium dependent protein kinase (CDPK) is therefore sufficient to satisfy the written description requirement. Furthermore, the case law is clear that "it is manifestly impracticable for an applicant who discloses a generic invention to give an example of every species falling within it, or even to name every species." *Id.* In this case, applicant's specification and examples, which teach how to select and use CDPK DNAs, are adequate to show those skilled in the art how the claimed invention is to be practiced.

The Office has also maintained the written description rejection on the ground that the specification does not describe the specific structural features of SEQ ID NO:1 that are correlated with its function of increasing the level of resitance to a disease-causing pathogen. Applicant respectfully points out that the CDPK sequences used in the claimed methods encode CDPK polypeptides, and calcium dependent protein kinase activity resulting from such expression is clearly a functional limitation that distinguishes

polypeptides used in the methods from other polypeptides. As stated in the Written Description Guidelines (66 FR 1106),

> [f]actors to be considered in determining whether there is sufficient evidence of possession include the level of skill and knowledge in the art, partial structure, physical and/or chemical properties, **functional characteristics alone or coupled with a known or disclosed correlation between structure and function**, and the method of making the claimed invention. Disclosure of any combination of such identifying characteristics that distinguish the claimed invention from other materials and would lead one of skill in the art to the conclusion that the applicant was in possession of the claimed species is sufficient (emphasis added.).

Accordingly, nucleic acid sequences encoding CDPK polypeptides used in the claimed methods are in fact distinguished from other polypeptides not only by the structural characteristic of having at least 80% sequence identity to SEQ ID NO:1, but also by the specific functional characteristic of having calcium dependent protein kinase activity. Functional characteristics alone ***or*** the disclosed correlation between structure and function are factors to be considered in this analysis. On this basis, applicant's specification teaches clear distinguishing characteristics that are shared by the CDPK polypeptides useful in the claimed methods, and applicant respectfully reconsideration on this issue.

Further, "it is not necessary that every permutation within a generally operable invention be effective in order for an inventor to obtain a generic claim, provided that the effect is sufficiently demonstrated to characterize a generic invention." See *Capon v. Eshhar*, 418 F.3d 1349,1359 (Fed.Cir.2005), citing *In re Angstadt*, 537 F.2d 498,504 (CCPA 1976). No evidence currently made of record in this case questions the enablement of applicant's claimed invention. Moreover, applicant notes that identifying inoperable nucleic acid molecules encoding CDPK polypeptides is accomplished using routine screening methods known in the art when the application was filed. Moreover, applicant's disclosure provides considerable direction and guidance on how to practice their invention and presents working examples, aiding the skilled worker to weed out

inoperable constructs. There was a high level of skill in the art at the time when the application was filed, and all of the methods needed to practice the invention were well known. Applicant's specification clearly characterizes the claimed generic method. Any experimentation needed to practice the invention would not be considered undue.

In sum, for all the above reasons, applicant submits that the specification as filed fully describes the invention encompassed by the present claims. The written description rejection should be withdrawn.

Anticipation

Claims 1-8, 10-16, and 54-57 under 35 U.S.C. § 102(b) as being anticipated by Sheen (WO 98/26045). In particular, the Office maintains the rejection on the basis that "the rejected claims set forth no positive method steps that would distinguish the claimed method from the method disclosed in the prior art." This rejection may now be withdrawn.

Claim 1, as amended, requires "introducing a transgene that overexpresses a nucleic acid molecule encoding a calcium dependent protein kinase (CDPK) polypeptide into a plant cell that is susceptible to a disease-causing pathogen." Support for this amendment is found, for example, on page 7 (lines 7-11) when taken in context with applicant's teaching found, for example, on pages 26-29, under the heading "Engineering Disease Resistant Plants." There applicant describes introducing a CDPK transgene into plants such potato, tomato, and rice, which are susceptible to disease-causing pathogens such as *Phytophora*, *Pseudomonas*, and *Magnaporthe*, respectively. WO 98/26045 is silent on whether CDPK regulates disease resistance genes, and there is no evidence indicating that disease resistance is necessarily present. Moreover, WO 98/26045 is silent on introducing a transgene into a plant cell that is susceptible to a disease-causing pathogen, as required by the claims. The anticipation rejection, in view of the present amendment, may now be withdrawn.

CONCLUSION

Applicant submits that this case is in condition for allowance, and such action is respectfully requested.

If there are any charges or any credits, please apply them to Deposit Account No. 03-2095.

Respectfully submitted,

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